Q1. (Priority 3)

STUART WEITZMAN SCHOOL OF DESIGN
UNIVERSITY OF PENNSYLVANIA
210 South 34th Street, Philadelphia, PA 19104

December 12, 2024

MEMORANDUM FOR MAYOR OF THE CITY OF PHILADELPHIA

Jun, Youngsang
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SUBJECT: Recommendation of Transit-Oriented Development Plan for the City of Philadelphia

1. Background

Though there is no statutory definition for Transit-Oriented Development (TOD), the U.S. Department of Transportation Federal Transit Administration (FTA) defines it as "*real property development that includes a mix of commercial, residential, office and entertainment uses centered around or located near a transit station that is served by reliable public transit with a mix of other transportation options.*" (FTA, 2024) There are many successful cases of TOD in the U.S., including Pearl District, Portland, and Oakland, as well as overseas, including Stockholm, Hong Kong (Cervero et al., 2017), Islamabad, Delhi, Kuala Lumpur, and Johannesburg (Cervero, 2013). The City of Philadelphia should also establish a TOD plan to enhance citizens' quality of life, revitalize the city, and pursue sustainability regarding transportation by referring to those cases.

2. The Characteristics of Philadelphia from the perspective of TOD

TOD is not a new idea, since most urban development concentrated along streetcar and interurban rail corridors in the pre-automobile era (Cervero et al., 2017). Philadelphia's subway system was established over 100 years ago, so one might think that the city already has neighborhoods around transit stations that are similar to TOD areas.

However, it is crucial to distinguish between transit-oriented and transit-adjacent. TOD is not simply developing a mass building area near major transit stops, but is more focused on an urban strategy that integrates transportation planning and land use, by making the city compact, mixed-use, highly walkable, and vibrant (Cervero et al., 2017).

3. The Validity of TOD in the City

a. TOD projects will increase transit ridership.

TODs increase ridership by encouraging travelers to shift from cars to trains and buses through two key functions: nodes and places (Cervero et al., 2017), First, TODs act as nodes, which function to access and connect various transit modes such as cars, trains, subways, buses, bikes, and pedestrians (Cervero et al., 2017). Second, TODs play the role of places, which function to foster communities, commercial, and cultural activities that help move people beyond mobility.

It is essential to balance between the two roles when planning TOD (Cervero et al., 2017). In the TOD planning case of Portland, OR, which is evaluated as the most successful TOD project in the U.S., the market strength and a TOD score were calculated by each location to see the influences of urban form and activities on transit use (Cervero et al., 2017).

b. TODs will make real estate value higher by organizing and revitalizing urban development.

TODs allow the development of land with high density and mixed-use amenities integrating residential, commercial, and office in specific areas maximizing the land use value (Giuliano et al, 2017; Cervero et al., 2017). For example, in Pearl District of Portland's plan of Streetcar-Oriented Development, the city invested streetscape enhancement, and it attracted market capital and consequently a large influx of population. As a result, the city's 20-year housing goal was met within 7 years on one-tenth the projected land area (Cervero et al., 2017).

Another example of Hong Kong shows that TOD often advocates for private investors. Hong Kong's MTR (Mass Transit Railway) and its Rail + Property (R+P) model, where rail development is financed through property revenues, achieving profit while fostering urban growth (Cervero et al., 2017).

c. TOD enhances social equity.

By offering diverse and concentrated public transit options, TOD enhances mobility for people who do not own cars such as seniors, students, and low-income people. Giuliano et al mentioned that TOD provides low-income families with easy access to public transportation and makes them enjoy better mobility to their jobs and healthcare, though also may have unintended social equity impacts (Giuliano et al, 2017).

4. Potential Barriers and Solutions

a. Some neighborhoods may hesitate TOD for economic or environmental reasons.

There may be resistance from residents concerned about the neighborhood's economy or their neighborhoods packed with people from other cities. As seen in Beaverton Round, Portland learned that TOD could not overcome a weak local real estate market (Cervero et al., 2017).

To overcome this barrier, the City first should implement a robust community engagement process (Cervero et al., 2017), providing clear information about the benefits of TOD. In the Fruitvale example, the city used on-the-street cross-sectional images as an effective tool of community engagement and it helped elevate the importance of place-making during the process of TOD planning (Cervero et al., 2017). Second, the city also should find a proper investment model and financial incentives for developers. According to the Moving Ahead for Progress in the 21st Century Act (MAP-21), one of the six grant objectives is to include private sector participation (FTA, 2024). The city may entice private investors by giving them financial incentives such as property tax abatements and low-interest loans (Cervero et al., 2017).

b. Residents who currently live in the development area may be concerned about gentrification.

TOD may force some residents, especially low-income residents to move from the neighborhoods they have lived in due to gentrification caused by TOD (Giuliano et al., 2017). To address this barrier, the city should comply with the FTA requirements and manage not to make gentrification and protect the current residents even after TOD is completed. FTA states that as the statutory requirements that "*at least 40% of the housing units in the TOD are legally binding affordable housing units restricted to tenants and owners with incomes ≤ 60% of the area median income*" (FTA, 2024).

5. Recommendation

The City of Philadelphia should start to plan TODs, following the principles below:

a. Follow TOD standards, by clearly distinguishing the roles of nodes and places, and adjusting between high-density with mix-use and pedestrian-friendly environments to reflect regional characteristics.

b. Find an investment model that fits the city, and give developers financial incentives.

c. Make the community participate in the planning and construction process of TOD.

d. Follow the FTA requirements and manage the TOD area to protect the current residents from gentrification.

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Q2. (Priority 2)

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December 12, 2024

MEMORANDUM FOR THE PHILADELPHIA CITY COUNCIL

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SUBJECT: Review of the Proposed Minimum Parking Requirements for New Multifamily Housing Developments

1. Background

The City of Philadelphia has made efforts to manage urban parking by setting parking requirements. There are two aspects of parking requirements in Philadelphia. First, for a new building, parking requirements determine a certain number of spaces a developer must supply at least. Second, for an existing building, parking requirements limit the uses a city will allow (Guerra, 2024). Both aim to accommodate peak parking demand and prevent spillover parking onto nearby streets.

However, due to persistent parking problems in the city, City Councilor K proposed the city add a minimum parking requirement of one off-street space per unit for new multifamily housing developments. Although this policy change may seem like a temporary solution to overcome the limitations of current parking requirements, it could have a range of negative consequences for the city. This memorandum explains the result of the review.

2. Assessment of the Need to Extend Parking Spaces in Philadelphia

Expanding parking spaces citywide should be approached with caution, as it is not a true solution to the parking problem and perpetuates the circular logic of parking demand and supply issues. This creates a cycle: (1) parking demand increases, (2) parking spaces are extended, (3) free parking becomes ample, (4) trip generation rates rise, (5) transportation system designed, (6) Urban sprawl —bringing the cycle back to step (1) (Guerra, 2024).

3. Assessment of the Need Establishment of New Minimum Parking Requirements

Even if it is concluded that parking spaces should be extended, deciding whether to establish new minimum parking requirements should be also approached with caution. It is because imposing a minimum parking requirement for new in Philadelphia could lead to several negative effects as follows.

a. Oversupply of Parking

Increasing minimum parking requirements according to current procedures could lead to an oversupply of parking. The city currently determines the parking requirement of each building by three steps: (1) Identify the land use, (2) Choose the basis for the requirement, (3) Choose the number of parking spaces to require per unit of the basis based on the Parking Standards (or other) handbook (Guerra, 2024). Requirements often lead to an oversupply of parking, as they are designed to accommodate peak demand, which may occur only for a short period (Shoup, 1999). The rest of the time, these spaces remain empty, representing a balkanized use of urban land (Guerra, 2024).

b. Increased Housing Costs

Constructing parking spaces adds significant costs to development projects, particularly in densely populated urban areas (Manville et al., 2004). Depending on whether the parking is aboveground or underground, costs can range from $10,000 to $25,000 per space (Shoup, 1999), which is typically about 10 percent of a building's development costs (Guerra, 2024). These costs are often passed on to residents through higher rents or purchase prices, exacerbating affordability challenges. Parking requirements can increase construction costs, decrease housing density, and lower land values in Oakland, CA (Guerra, 2024). Since Philadelphia is one of the densely populated urban areas, it is not immune from its influence.

c. Discourage alternative modes and ripple effects by other building types

Mandating minimum parking requirements for multifamily housing development encourages car dependency and discourages alternative modes of transportation such as walking, cycling, and public transit. As a result, this ultimately may require the city to increase minimum parking spaces at other public or commercial facilities. This can lead to a less walkable and less vibrant urban environment (Manville et al., 2004). In the case of Los Angeles, the city provided ample off-street parking and limited alternative transportation options often see higher rates of solo driving, contributing to traffic congestion and air pollution, which distorts how the downtown functions. (Manville et al., 2004). As a result, extending parking requirements can stifle economic development by increasing the cost of doing business and discouraging investment (Manville et al., 2004).

4. Recommendation

Based on the evidence presented above, the City does not recommend pursuing the policy change of adding a minimum parking requirement for multifamily housing development. The City will instead consider the following alternative approaches that promote a more balanced and sustainable transportation system.

a. The City will introduce demand-responsive pricing for curb parking. In this pricing system, rates are set differently by time zone. The first hour is cheap, and the second, third, and fourth hours are continuously more expensive (Guerra, 2024). Implementing performance-based parking prices that fluctuate with demand can help ensure the availability of curb parking (Shoup, 1999; Guerra, 2024). This market-based approach shifts the cost of parking to users rather than residents in general.

b. The City will invest curve parking revenues into alternative transportation to improve public transit, cycling infrastructure, and pedestrian amenities. It will provide residents with viable alternatives to driving, reducing the need for parking. In the case of 1978 Plan for Old Pasadena, the city offered to return all parking meter revenue to the city, and it accelerated the development of the city. (Guerra, 2024).

c. The City will consider introducing parking cash-out, a system that would help solve parking problems in workplaces by paying a certain amount per year to employees who park, and paying the same amount to employees who do not park (Guerra, 2024).

5. Conclusion

Instituting a new minimum parking requirement for multifamily housing in Philadelphia should be approached with caution, so the City will embrace alternative strategies such as performance-based curb parking pricing, and investing parking revenue in alternative transportation. By doing this, Philadelphia will have a more efficient, equitable, and sustainable transportation system that benefits all residents.

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Q3. (Priority 1)

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December 12, 2024

MEMORANDUM FOR MAYOR OF THE CITY OF PHILADELPHIA

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SUBJECT: Recommendation of Philadelphia City Cycle Strategy

1. Background

The City of Philadelphia has a cycling share of 2%, and this is the 14th highest rate among U.S. cities (U.S. Census Bureau, 2014). When compared to the national average of only 0.6%, this is this is a relatively high figure. Philadelphia's existing cycling network has been developed by federal, state, and city efforts. In 1991, the Intermodal Surface Transportation Efficiency Act (ISTEA) first established a federal role in bike/pedestrian funding and established 50 state bike/pedestrian coordinators (Guerra, 2024). Also, the National Bicycling and Walking Strategy (1994) became mandated.

Now the city aims to significantly increase cycling trips by 2035 to shift mode share to reduce reliance on car travel and promote sustainability. To achieve ambitious targets of 5%, 10%, and 15% cycling mode share will require strategic action. The successes of cities like Portland, OR, which reached a 6% cycling share in 2010 through deliberate policy and infrastructure starting from 1971, may offer valuable lessons (Pucher et al., 2011). Therefore, concrete improvements of strategy are required to achieve this target at the moment.

2. Scope of Problem

a. Insufficient Cycling Infrastructure

Philadelphia's infrastructure plan for bikes still lacks comprehensive coverage and continuity, which discourages potential cyclists. According to High Quality Bike Network by Status reported in 2022 by the Philadelphia City Planning Council (PCPC), only 83 miles of bike lanes are completed construction, and 460 miles of proposed lanes are still required to be constructed (PCPC, 2022). Considering every cost spent on cycling infrastructure is estimated to be 30 times more cost-effective than investments in car roads (City of Portland, 2010; Guerra, 2024), it is crucial that investment in cycling infrastructure needs to be maintained and expedited in the future.

Additionally, the road design method should be carefully considered. In a survey, a 2-3 foot buffer with plastic bollards made bicyclists feel safer than a buffer with planters or parked cars (Guerra, 2024). Considering the current road design limitations, but it is required to make

effort to build infrastructure that makes cycling less dangerous for both cyclists and non-cyclists (Geller, 2009).

b. Limited Access to Bicycle Parking and Sharing Systems

City of Philadelphia launched Indego Bikeshare system in 2015 and have expanded its coverage. In addition, parking space for bikes in the city helps people access multi-modal transportation easily (PCPC, 2022). Other cities focused on not only public access, but also requiring significant levels of bike parking in both residential and commercial buildings (Pucher et al., 2011). Cities like Chicadgo and Washington have shown that a minimum number of bike parking spaces per residential unit or per unit area of commercial or public facilities (Pucher et al., 2011).

c. Low Participation Among Women and Older Adults

Cycling proportion in Philadelphia mirrors national trends, where it is dominated by men aged 20-40 (Guerra, 2024). Safety concerns and insufficient education or outreach programs may affect women and older adults discouraging riding bikes (Pucher et al., 2011). Another problem is that pedestrians and drivers who do not ride bikes also need education on bike lanes and safety precautions, but such initiatives have not yet been implemented in the city.

3. Recommendation

a. Expansion and Improvement of Bikeway Networks (Short-Term, to achieve 5% share)

The city is recommended to increase the budget and human resources to manage the infrastructure, by studying other cities' examples. The investments in adding physical barriers to existing bike lanes should be prior to other actions planned in High Quality Bike Network, since it is expected to improve safety immediately, reflecting the result people prefer for their safety. Other actions may include the following referring to other cities but not limited to green shared lane markings (San Francisco), and buffered bicycle lanes (New York City; Minneapolis), which help riders feel safe (Guerra, 2024). The city is also recommended to pilot a new type of bicycle road that has not been operated in Philadelphia before, such as Track Bicycle Boulevards (Berkley) (Guerra, 2024). The city is recommended to maintain a fixed organization to ensure that the current plan of High Quality Bike Network updated and managed are fed back and policies are rolled out across the whole city.

b. Improvement of Parking and Roadway Construction Regulations (Medium-Term, to achieve 10% share)

The city is recommended to consider institutional measures to increase and better manage public parking for bikes and public bike facilities, as well as to increase privately managed parking for bikes. One example is Oregon's "Bicycle Bill", which requires ODOT, counties, and cities to provide walkways and bikeways on all roadway construction, reconstruction or relocation projects (Guerra, 2024). The other examples are Chicadgo and Washington's regulation of the proportion of bike parking areas in every residential or public facility. For Indego bikes, the city is

recommended to Increase Dock Coverage by the plan, as well as How to keep docks from becoming full so riders do not feel limited to parking when they use Indego bikes.

c. Targeted Promotion and Education (Long-Term, to achieve 15% share)

Developing educational initiatives focused on women and older adults may be crucial to achieving bike share mode increase long term. It is also important to educate about the characteristics of bike transportation to non-cyclists such as drivers or pedestrians. In Chicago's example, not only cyclists but also drivers and pedestrians, taxi and bus drivers are educated and the city requires "share the road" instruction in high school driver education classes (Pucher et al., 2011).

4. Conclusion

To achieve Philadelphia's cycling mode share goals of 5%, 10%, and 15% by 2035, a multi-faceted strategy as the recommendations above is essential. By learning from successful models in cities like Portland, Chicago, and Washington, Philadelphia can implement targeted interventions that address these challenges effectively. These measures will ensure a safer, more accessible, and sustainable cycling environment that benefits all residents.

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Q4. (Priority 4)

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December 12, 2024

MEMORANDUM FOR SECRETARY OF TRANSPORTATION

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SUBJECT: Recommendation of Purchasing Cars Subsidy Policy for Low-income Households

1. Background

The role of the public sector in financing transportation is a complex issue that must consider not only costs and benefits but also social equity. This includes whether to provide subsidies and how to allocate funding in a fair and effective manner. Regarding contemplating policy of a cash subsidy for low-income car purchases, some assert low-income families may not have the resources to purchase, operate, and maintain reliable automobiles, as Henry Holmes stated "Poor people and people of color are subsidizing our addiction to the automobile. They pay the highest social, economic and environment costs and receive the fewest benefits from an auto-dominated transportation system." (Guerra, 2024) Since the U.S. transportation system planning has focused on cars in its historical context, it seems right. However, others insist it is likely to worse existing transportation challenges, worsen environmental inequities, and provide limited long-term benefits for the target population (Giuliano et al., 2017). This memo introduces the major pros and cons of policy providing a subsidy to help low-income households purchase cars.

2. Pros of Cash Subsidies

a. Enhanced Access to Opportunities

Low-income households have spatial mismatch between job centers and affordable housing necessitates longer commutes, as well as mode mismatch because they do not own cars but need to live or work far from public transit. In this situation, cars can make it easier to search and regularly commute to jobs, and employment can provide households with the resources to purchase automobiles (Giuliano et al., 2017). For example, a study of welfare recipients in Los Angeles found that those with unlimited access to a car were more likely to be employed than those without (Blumenberg, 2008). In addition, cash subsidies could empower low-income households to purchase vehicles, thereby bridging the spatial mismatch between residential areas and employment opportunities, healthcare facilities, and grocery stores. This enhanced mobility could lead to increased employment rates, improved access to healthcare, and better food security (Giuliano et al., 2017).

b. Reduced Transportation Expense Burden

While low-income households spend a lower proportion of their income on transportation compared to higher-income households, they often face higher costs for comparable levels of service (Giuliano et al., 2017). One reason is that low income households often experience a market fraught with abuse including the sale of vehicles in poor condition, unfair financing arrangements, deceptive sales practices, junk products with fees that add to the vehicle's cost, including excessive interest rates and fees (Giuliano et al., 2017). Providing subsidies along with supportive programs could help them not only support their expenses themselves but also save time and effort.

c. Support for Low-income Families and Women

Cars offer low-income women advantages in balancing both home and work responsibilities. Since low-income working mothers are likely than men to have nonstandard schedules, subsidies for purchase car may allow them to more easily and safely manage their multiple responsibilities as heads of households (Giuliano et al., 2017).

3. Cons of Cash Subsidies

a. Financial Equity and Sustainability

According to confounding notions of equity in transportation finance, providing subsidies to many low-income households may be understood as "each group receives a proportionally equal share of transportation resources." (Giuliano et al., 2017) To fulfill this equity, the federal government have to struggle with very expensive price, and it may be unclear where the funding would come from. Therefore, the effectiveness of the subsidy program hinges on equitable distribution and policy beneficiaries' responsible use of funds. Without careful design and implementation, however, the subsidies could be allocated to those already have car ownership.

b. Congestion and Environmental Impacts

The increase of car ownership could worsen traffic congestion, particularly in already congested urban areas. This could lead to longer commute times for everyone and potentially negate the time-saving benefits for the subsidy recipients. Additionally, increased vehicle use would contribute to higher greenhouse gas emissions and air pollution, potentially impacting the health and well-being of the very communities the policy aims to help (Giuliano et al., 2017).

c. Undermining Public Transit Investments

A shift towards private vehicle use might detract from the political will and financial resources allocated to public transportation improvements. This could lead to a decline in service quality and ridership, ultimately hurting those who continue to rely on transit due to affordability or other constraints (Giuliano et al., 2017).

4. Recommendation and Countermeasure

I recommend supporting the subsidized policy aimed at low-income groups to address spatial and modal mismatches and improve their opportunity equity. through car-centered transportation strategies. Refraining from the subsidy may be another discrimination and deny them essential opportunities of their access to transportation. However, the following countermeasures should be accompanied to cover the limitations and concerns about public transportation planning or environmental sustainability.

a. Set a limit on subsidy recipients to minimize the impact on public transportation and environmental sustainability. Those who are excluded due to the limit on subsidies will receive alternative support, such as toll fee assistance for long-distance commuters.

b. Enhance the inspection system to ensure subsidies are used as intended, and involve civic organizations to address the challenges low-income groups face in purchasing vehicles.

c. Offer pilot programs for low-income households such as ride-sharing subsidies, car-sharing initiatives, or support for bicycle ownership and infrastructure (Blumenberg, 2008).

5. Conclusion

The subsidy for purchase car for low-income households can contribute to a more just and sustainable transportation system that benefits all, regardless of income level or car ownership status. However, the countermeasures should be accompanied to cover its limitations and concerns about public transportation planning or environmental sustainability.

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